UPDATES TO NJMC DISTRICT ZONING REGULATIONS BOOK DATED MARCH 6, 2006
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CHAPTER 4 - DISTRICT ZONING REGULATIONS

SUBCHAPTER 8
SITE PLAN REQUIREMENTS

19:4-8.6 Drainage

(a) General requirements for drainage are as follows:

1. Drainage plans shall be signed and sealed by a New Jersey-licensed professional engineer or other professional authorized to prepare drainage plans.

2. All vehicular use areas shall be drained so as to direct surface water runoff to a stormwater drainage system for eventual subsurface or stream disposal. Conveyance via vegetated channels is acceptable but shall be supported with calculations verifying stability during peak flows.

3. A watershed runoff hydrograph that displays and compares the peak discharge rate and volume shall be prepared for both pre-and post-development conditions. Runoff volume calculations shall be used to determine the sizing of detention facilities, if necessary.

4. The receiving stormwater drainage system (pipe flow or open channel flow) shall be analyzed to ensure that it has the additional capacity necessary to handle any increase in stormwater flow during the 25-year design storm. The analysis shall include all upstream and downstream runoff peak contributions, estimated per N.J.A.C. 19:4-8.6(b)3, to a downstream point established by the NJMC. If the receiving stormwater drainage system is at or over capacity, or is not analyzed, detention and/or infiltration facilities shall be provided in order to maintain site runoff peak flow at pre-development levels.

5. The size of the drainage area shall include on-site and off-site lands contributing stormwater to the discharge point. Additionally, the pre-development drainage patterns of any off-site contributions shall be maintained unless a compensatory system is provided, which, at a minimum, maintains the pre-development on-site capacity to carry neighboring stormwater runoff peak flow during the 25-year storm.

6. An operation and maintenance manual for stormwater drainage systems, including stormwater quality measures, shall be provided to ensure proper function and operation of the system and in a manner consistent with N.J.A.C. 7:8, the Stormwater Management Rules. The operation and maintenance manual shall be updated as necessary. Updates shall be provided to the NJMC.

(b) Design requirements for drainage are as follows:

1. The applicant shall provide information sufficient for the NJMC to determine compliance with the applicable sections of N.J.A.C. 7:8, the Stormwater Management Rules. With regard to water quality, proposed development and redevelopment that may introduce petroleum hydrocarbons to runoff water shall install stormwater management measures that target and remove such pollutants.

2. All drainage systems shall be designed for a 25-year storm event. The magnitude of the 25-year rainfall depth and/or rainfall intensity specific to each site shall be developed from the "Precipitation-Frequency Atlas of the United States," National Oceanic and Atmospheric Administration (NOAA) Atlas 14, Volume 2, Version 2, incorporated herein by reference, as amended and supplemented. This document is available from the NOAA National Weather Service, Office of Hydrologic Development, Hydro-meteorological Design Studies Center, Bldg. SSMC2 W/OHD13, 1325 East-West Highway, Silver Spring, MD 20910-3283, or online at http://hdsc.nws. noaa.gov/hdsc/pfds/orb/nj_pfds.html. An outline of the above document, specific to New Jersey, is available from the National Resources Conservation Service (NRCS) New Jersey State Office (NJSO). This outline, NJ Bulletin No. NJ210-4-1, dated September 8, 2004, incorporated herein by reference, as amended and supplemented, is available through the NRCS New Jersey State Office, 220 Davidson Avenue, 4th Floor, Somerset, New Jersey 08873, or online at www.state.nj.us/dep/damsafety/nrcs_24hour_rainfall.pdf. Per N.J.A.C. 7:8, the Stormwater Management Rules, properties within the District and outside the FEMA Special Flood Hazard Area

(SFHA) may be required to meet water quality control requirements for events greater than the 25-year event. Additionally, the water quality design storm shall be developed pursuant to N.J.A.C. 7:8-5.5.

3. Runoff estimation:

i. The Rational Method, utilizing the rational formula listed in Figure 8-2 below, shall be used for computing the runoff from any drainage area up to 20 acres. The antecedent precipitation factor (Ca) shall be used with the Rational and Modified Rational Method, as shown in the Standards for Soil Erosion and Sediment Control in New Jersey at N.J.A.C. 2:90-1.3, incorporated herein by reference, as amended and supplemented. For areas larger than 20 acres, the National Resources Conservation Service's (NRCS), Technical Release No. 55 (TR-55), "Urban Hydrology for Small Watersheds," incorporated herein by reference, as amended and supplemented, or equivalent approved by the NJMC, shall be used. A copy may obtained from the NRCS New Jersey State Office, 220 Davidson Avenue, 4th floor, Somerset, New Jersey 08873, or online at the NRCS website, http://www.wcc.nrcs.usda.gov/hydro/hydro-tools-models-tr55.html; and

Figure 8-2
Rational Formula

$$Q = ciA$$

where:

Q=	Peak flow in cubic feet per second (cfs)
c =	Runoff coefficient (weighted) x the antecedent precipitation factor
i =	Rainfall intensity in inches per hour (in/hr)
A=	Drainage area in acres (ac)

ii. The runoff coefficients (c) listed in Table 8-2 below shall be used in the rational formula:

Table 8-2
Coefficient of Runoff Values

Land Use	Description	Hydrologic Soils Group			
		A	B	C	D
Cultivated Land:	Without conservation treatment	0.50	0.70	0.80	0.90
	With conservation treatment	0.30	0.45	0.65	0.70
Pasture:	Poor condition	0.40	0.65	0.75	0.85
Grassland or Range Land	Fair condition	-------	0.25	0.50	0.65
Meadow	Good condition	-------	-------	0.40	0.60
Wood or Forest Land:	Poor cover; thin stand, no mulch	-------	0.35	0.60	0.70
	Good cover	-------	-------	0.45	0.60
Open Space:	Poor Condition (grass cover < 50%)	-------	0.65	0.70	0.85
Lawns, Parks, Golf Courses,	Fair Condition (grass cover 50% to 75%)	-------	0.45	0.60	0.75
etc.)	Good Condition (grass cover > 75%)	-------	0.25	0.50	0.65
Urban Areas:					
Commercial and Business	85% impervious	0.85	0.90	0.90	0.95
Industrial	72% impervious	0.65	0.80	0.90	0.90
Residential:					
Average Lot Size (acres):	Average % impervious:				
1/8	65	0.60	0.75	0.85	0.90
1/4	38	0.30	0.55	0.70	0.80
1/3	30	-------	0.50	0.70	0.80
1/2	25	-------	0.45	0.65	0.75
1	20	-------	0.40	0.65	0.75
Impervious Areas:	Parking lots, roofs, driveways, etc.	0.99	0.99	0.99	0.99
Paved	Streets and roads	0.99	0.99	0.99	0.99
Gravel	Streets and roads	0.60	0.75	0.85	0.90
Dirt	Streets and roads	0.50	0.70	0.80	0.85

Note: Hydrologic Soil Groups texture descriptions are the following:

A Sand, loamy sand, or sandy loam
B Silt loam or loam
C Sandy clay loam
D Clay loam, silty clay loam, sandy clay, silty clay, or clay.

iii. The time of concentration (Tc) used shall be calculated using the NRCS TR-55 methodology or other method approved on a case-by-case basis by the NJMC. The time of concentration shall have a sheet flow component of no greater than 150 feet on paved surfaces. Vegetated surfaces shall have a sheet flow component no greater than 100 feet. The minimum time of concentration shall be six minutes.

4. Stormwater drainage collection system design requirements are as follows:

i. The design of pipes and conduits shall use Manning's equation, listed in Figure 8-3 below, to determine capacity.

Figure 8-3
Manning's Equation

$$Q = (1.486/n)AR^{2/3}S^{1/2}$$

where:

Q =	Flow, cubic feet per second (cfs)
n =	Manning's roughness coefficient
A =	Cross-sectional area of flow in square feet (sf)
R =	Hydraulic radius in feet, R=A/P, where P is the wetted perimeter, measured in feet and defined as the length of the line of contact between the flowing water and the channel (ft)
S =	Slope of energy grade in feet per foot (ft/ft)

ii. Pipe sizes shall be determined using the design runoff, conduit entrance conditions and hydraulic capacity. No stormwater systems may be designed to function under a pressure condition unless justified by the design professional and approved by the NJMC.

iii. Design velocities in pipes shall be a minimum of two feet per second, or as otherwise approved on a case-by-case basis by the NJMC, to allow for self-cleaning and a maximum of 15 feet per second to prevent scouring of pipes, manholes, and inlets and erosion at points of discharge.

iv. The materials used in the construction of storm sewers shall be reinforced concrete, ductile iron, corrugated polyethylene, or other as approved by NJMC. Corrugated metal and steel shall not be permitted. Should existing corrugated metal or steel pipes be incorporated into a proposed system, their condition shall be verified.

v. The Manning's roughness coefficient "n" for circular cross section, nonporous concrete pipe shall be 0.013. Other cross sections or pipe materials shall have commensurate friction factors.

vi. All transitions in pipe slopes, junctions and changes in pipe sizes shall be confined to manholes, catch basins, or other accessible structures designed for one or more of these purposes. Additionally, all manhole, catch basin, and other pipe connections to structures shall be equipped with flexible, water-tight joints.

vii. Where a drainage system discharges to a tidal waterway, tide gates, constructed of cast iron or other corrosion-proof material, shall be provided at every discharge point. Additionally, the backwater condition generated by the mean high water (MHW) tide shall be considered in the drainage calculations associated with tidally influenced areas. Data on the tide elevations throughout the District is available from the NJMC.

viii. Where a drainage system starts at or discharges into a stream, ditch or other body of water, a concrete headwall with wing-walls and a rip-rap apron pad, or other as approved by the NJMC, shall be constructed. The apron pad and/or scour hole design shall consider the tailwater elevation to be equal to the mean low water (MLW) elevation if tidally influenced.

ix. Roof runoff shall be conveyed via roof leaders to a stormwater collection system, where feasible. Should direct connection to a stormwater collection system be impractical, roof leaders shall first discharge to stable, vegetated areas, where feasible, and then be directed to a stormwater collection system.

x. Roof leaders and their respective receiving systems shall be sized to pass a minimum rainfall intensity per N.J.A.C. 5:23-3.15(b)12ii of the Uniform Construction Code (UCC).

5. Surface and subsurface detention basins shall be designed in accordance with N.J.A.C. 7:8, the Stormwater Management Rules, and the NJDEP "New Jersey Stormwater BMP Manual," each incorporated herein by reference, as amended and supplemented. The New Jersey Stormwater BMP Manual is available online at http://www.state.nj.us/ dep/stormwater/bmp_manual2.htm. The following are exceptions to the above requirements:

i. The design storm shall be reduced to the 25-year storm unless constructed outside of the FEMA Special Flood Hazard Area (SFHA). The NJDEP stormwater quantity requirements, which include larger storm events, shall apply to areas outside of the SFHA.

ii. Backwater calculations shall be included in the design, per (b)4vii, above.

iii. Subsurface detention systems that rely on infiltration for discharge shall only be designed in locations without known soil contamination or other issues which may threaten the quality of groundwater.

iv. Detention basins shall be maintained to prevent clogging and/or siltation. A maintenance plan shall be submitted to the NJMC for review and approval.

6. Stormwater pollutant removal shall be performed in compliance with N.J.A.C. 7:8, the Stormwater Management Rules. In addition:

i. Stormwater quality control devices shall be installed off-line unless it is demonstrated that resuspension of collected soils will not occur during storm intensities or depths greater than the NJDEP Water Quality Storm as defined in N.J.A.C. 7:8-5.5.

ii. Similar structural stormwater management measures may not be used in series to achieve the required 80-percent TSS removal unless approved by the NJMC.

iii. Stormwater management measures, such as detention basins, swales and sand filters, shall not receive stormwater runoff until the site has been stabilized per the Standards for Soil Erosion and Sediment Control in New Jersey at N.J.A.C. 2:90-1.3.

iv. All subsurface stormwater management measures shall have a clearly identified method of clean-out.

Adopted in 38 N.J.R. 1860(a), effective May 1, 2006.

SUBCHAPTER 9
FLOOD PLAIN MANAGEMENT

19:4-9.1 Title

This subchapter shall be known and may be referred to as the Flood Plain Management Regulations of the Hackensack Meadowlands District.

19:4-9.2 Purposes

This subchapter sets forth procedures and engineering and planning standards in accordance with which the NJMC shall review and approve or disapprove applications for the development or use of land within the District. It is designed to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed: to protect human life and health; to minimize expenditure of public money for costly flood control projects; to minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public; to minimize prolonged business interruptions; to minimize damage to new and existing construction; to minimize damage to public and private facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, and bridges located in areas of special flood hazard; to help maintain a stable tax base by providing for the second use and development of areas of special flood hazard so as to minimize future flood blight areas; to ensure that potential buyers are notified that property is in an area of special flood hazard; to ensure that those who own or occupy the areas of special flood hazard assume responsibility for their actions; and generally to provide for the exercise of the powers regarding the review and regulation of land use and development conferred upon the NJMC by Chapter 404 of the Laws of 1968. In order to accomplish its purpose, this subchapter includes methods and provisions for: restricting or prohibiting uses which are dangerous to health, safety and property due to water hazards, or which result in damaging increases in flood heights; requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at

the time of initial construction; controlling the alteration of natural flood plains, stream channels, and natural protective barriers which help accommodate or channel flood waters; controlling filling, grading, dredging and other development which may increase flood damage; and preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards in other areas.

19:4-9.3 Words and phrases defined

Unless specifically defined in N.J.A.C. 19:4-2 or below, words or phrases used in this subchapter shall be interpreted so as to give them the meaning they have in common usage and to give this chapter its most reasonable application.

"Area of shallow flooding" means a designated AO or AH Zone on the Flood Insurance Rate Map (FIRM) with a one percent or greater chance of flooding to an average depth of one to three feet where a clearly defined channel does not exist; where the path of flooding is unpredictable; and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

"Area of special flood hazard" means the land in the flood plain within a community subject to a one percent or greater change of flooding in any given year.

"Base flood" means the flood having a one percent chance of being equaled or exceeded in any given year. The base flood is also described as the 100-year flood.

"Base flood elevation" means the height of the base flood in relation to the National Geodetic Vertical Datum (NGVD) of 1929, as determined by the National Geodetic Survey of the National Ocean Service, incorporated herein by reference, as amended and supplemented, for which information is available at NGS Information Services, NOAA, N/NGS12, National Geodetic Society, SSMC-3, #9202, 1315 East-West Highway, Silver Spring, MD 20910-3282.

"Basement" means any area of the building having its floor subgrade (below ground level) on all sides.

"Breakaway wall" means a wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces without causing damage to the elevated portion of the building or supporting foundation system.

"Development" means any man-made change to improved or unimproved real estate, including, but not limited to, building or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, or storage of equipment or materials located within the area of special flood hazard.

"Elevated building" means a non-basement building that is:

1. In the case of a building in an area of special flood hazard, built to have the top of the elevated floor, or in the case of a building in a coastal high hazard area, built to have the bottom of the lowest horizontal structural member of the elevated floor, elevated above the ground level by means of piling, columns (posts and piers), or shear walls parallel to the flow of the water; and
2. Adequately anchored so as not to impair the structural integrity of the building during a flood of up to the magnitude of the base flood.
3. In an area of special flood hazard, "elevated building" also includes a building elevated by means of fill or solid foundation perimeter walls with openings sufficient to facilitate the unimpeded movement of flood waters.

"Expansion to an existing mobile home park or mobile home subdivision" means the preparation of additional sites by the construction of facilities for servicing the lots on which the mobile homes are to be affixed (including the installation utilities, either final site grading or pouring of concrete or the construction of streets).

"FIA" means the Federal Insurance Administration.

"Flood" or "flooding" means a general and temporary condition of partial or complete inundation of normally dry land areas from:

1. The overflow of inland or tidal water; and/or
2. The unusual and rapid accumulation or runoff of surface waters from any source.

"Flood Insurance Rate Map" (FIRM) means the official map on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

"Flood insurance study" means the official report provided in which the FIA has provided flood profiles, as well as the FIRM's and the water surface elevation to the base flood.

"Highest adjacent grade" means the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

"Historic structure" means any structure that is:

1. Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;
2. Certified or preliminarily determined by the Secretary of the Interior as contributing the historical significance of a registered historic district preliminarily determined by the Secretary to qualify as a registered historic district;
3. Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior; or
4. Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either by an approved state program as determined by the Secretary of the Interior or directly by the Secretary of the Interior in the states without approved programs.

"Manufactured home" means a structure, transportable in one or more sections, which is built on a permanent chassis and designed to be used as a dwelling and complies with the standards of the New Jersey Uniform Construction Code, N.J.A.C. 5:23. The term "manufactured home" does not include park trailers, travel trailers and other similar vehicles.

"Manufactured home park or manufactured home subdivision" means a parcel, or contiguous parcels, of land divided into two or more manufactured home lots for rent or sale.

"New construction" means structures for which the "start of construction" commenced on or after February 17, 2004 and includes any subsequent improvements to such structures.

"New mobile home park or mobile home subdivision" means a parcel (or contiguous parcels) of land divided into two or more mobile home lots for rent or sale for which the construction of facilities for servicing the lot (including, at a minimum, the installation of utilities, either final site grading or the pouring of concrete pads, and the construction of streets) is completed on or after February 17, 2004.

"Recreational vehicle" means a vehicle that is:

1. Built on a single chassis;
2. 400 square feet or less when measured at the longest horizontal projections;
3. Designed to be self-propelled or permanently towable by a light duty truck; and
4. Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

"Start of construction" for other than new construction or substantial improvements under the Coastal Barrier Resources Act (P.L. 97-348), includes substantial improvement and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, placement, or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site such as the pouring of a slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearings, grading, and filling, nor does it include the excavation for a basement, footings, piers or foundations or the erection of temporary forms; nor does it include the installation on property of accessory buildings, such as garages or sheds not occupied as dwelling units or not as part of the main structure. For a substantial improvement, the actual start of construction means the first

alteration of any wall, ceiling, floor, or other structural part of a building whether or not that alteration affects the external dimensions of the building.

"Structure" means a walled and roofed building, a manufactured home or a gas or liquid storage tank that is principally above ground.

"Substantial improvement" means any reconstruction, rehabilitation, addition, or improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the start of construction of the improvement. This term includes structures that have incurred substantial destruction, regardless of the actual repair work performed. The term does not, however, include either:

1. Any project for improvement of a structure to comply with existing State or local health, sanitary, or safety code specifications that have been identified by the local code enforcement officer and that are the minimum necessary to assure safe living conditions; or

2. Any alteration of a historic structure provided that the alteration will not preclude the structure's continued designation as a historic structure.

19:4-9.4 Lands to which this subchapter applies

This subchapter shall apply to all areas of special flood hazards within the boundaries of the District.

19:4-9.5 Basis for establishing the areas of special flood hazard

The areas of special flood hazard identified by the FIA in a scientific and engineering report entitled, "Flood Insurance Study, Hackensack Meadowlands District, New Jersey, Ber-gen and Hudson Counties," dated September 30, 2005, with accompanying FIRM, Panel numbers 0245G, 0252G, 0253G, 0254G, 0256G, 0257G, 0258G, 0259G, 0261G, 0262G, 0263G, 0264G, 0266G, 0267G, 0268G, 0307G, 0331G, and 0332G, is hereby incorporated by reference, as amended and supplemented, and declared to be a part of this chapter. The Flood Insurance Study and FIRM mapping are on file at the Offices of the New Jersey Meadowlands Commission, One DeKorte Park Plaza, Lyndhurst, New Jersey 07071.

19:4-9.6 Fees

(a) Any requests for flood hazard certification or variances and appeals shall be submitted to the NJMC and accompanied by such fee as set forth in N.J.A.C. 19:4-11.2.

(b) Any requests for copies of the regulations, study, or maps submitted to the NJMC shall be accompanied by a copying fee as specified in N.J.S.A. 46:1A-1 et seq.

19:4-9.7 Penalties and enforcement

Penalties and enforcement of these regulations shall be enforced as per N.J.A.C. 19:4-4.21.

19:4-9.8 Other permits

No building permit, zoning certificate, occupancy certification, subdivision plat approval, or implementation plan approval shall be issued by any official or agency of the NJMC on any land, or portion thereof, that is within an area of special flood hazard until there has been compliance with these regulations. Any approvals issued in conflict with this subchapter shall be null and void.

19:4-9.9 Abrogation and greater restrictions

This subchapter is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this subchapter and other regulations conflict or overlap, whichever imposes the more restrictive regulation shall prevail.

19:4-9.10 Warning and disclaimer of liability

The degree of flood protection required by this subchapter is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This chapter does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This chapter shall not create liability on the part of the NJMC, any officer or employee thereof, or the FIA for any flood damages that result from reliance on this chapter or any administrative decision lawfully made thereunder.

19:4-9.11 Development permit required

No structure or land shall be constructed, moved, located, extended, converted or altered after February 17, 2004 within any area of special flood hazard established in N.J.A.C. 19:4-9.5 unless a zoning certificate, construction permit, occupancy certification, subdivision approval, sanitary landfill approval or other development permit approvals as required by Chapter 404 of the Laws of 1968 (N.J.S.A. 13:17-1 et seq.) shall first have been obtained from the NJMC certifying that the proposed construction, use or development complies with these regulations.

19:4-9.12 Administration

The administration and implementation of this subchapter in accordance with its provisions is vested in the Chief Engineer, except for the granting of variances pursuant to N.J.A.C. 19:4-4.14(a).

19:4-9.13 Duties and responsibilities of the Chief Engineer

(a) The Chief Engineer shall administer the provisions of this subchapter in the manner set forth herein and in furtherance of such authority, shall, but not be limited to:

1. Maintain permanent and current records with respect to this section, including amendments thereto;

2. Review and approve or disapprove all development permits after determining that the requirements of this regulation have or have not been satisfied;

3. Review all development permits to determine if the proposed development adversely affects the flood carrying capacity of the area of special flood hazard.

i. If it is determined that there is no adverse effect, then the permit shall be granted consistent with the provisions of this section;

ii. If it is determined that there is an adverse effect, then flood damage mitigation measures shall be made a condition of the permit; if such mitigation cannot be accomplished, the permit shall be denied;

4. Maintain for public inspection all records pertaining to development permits, including: obtaining and recording the actual elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures, and whether or not the structure contains a basement; verifying and recording the actual elevation (in relation to mean sea level) and maintaining flood proofing certifications for all new or substantially improved flood proofed structures;

5. Notify adjacent communities and the State Coordinating Agency for the National Flood Insurance Program prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the FIA; require that maintenance is provided within the altered or relocated portion of said watercourse so that the flood carrying capacity is not diminished;

6. When base flood elevation data has not been provided in accordance with N.J.A.C. 19:4-9.5, basis for establishing the areas of special flood hazard, the Chief Engineer shall obtain, review, and reasonably utilize any base flood elevation data available from a Federal, State, or other source, in order to administer N.J.A.C. 19:4-9; and

7. Make interpretations where needed as to the exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions). The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in N.J.A.C. 19:4-4.19.

19:4-9.14 Variances from floodplain management regulations

(a) In cases in which there is exceptional hardship in carrying out the literal provision of this chapter, whether because of conflicting requirements or otherwise, the Commission may authorize a variance from such provision. In passing upon requests for variances, the Commission shall consider all technical evaluations; all relevant factors and standards specified in other sections of this chapter; and the following:

1. The danger that materials may be swept onto other lands, to the injury of others;

2. The danger to life and property due to flooding or erosion damage;

3. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage to the individual owner;

4. The importance of the services provided by the proposed facility to the community;

5. The necessity to the facility of a waterfront location, where applicable;

6. The availability of alternative locations for the proposed use that are not subject to flooding or erosion damage;

7. The compatibility of the proposed use with existing and anticipated development;

8. The relationship of the proposed use to the comprehensive plan and flood plain management program of that area;

9. The safety of access to the property in times of flood for ordinary and emergency vehicles;

10. The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site; and

11. The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water systems, and streets and bridges.

(b) The procedure to be followed in an application for a variance from this chapter shall be the same as the procedure specified in N.J.A.C. 19:4-4.14.

19:4-9.15 Standards for the granting of variances

(a) Variances may be issued for new construction and substantial improvements to be erected on a lot contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing the items in N.J.A.C. 19:4-9.14(a) have been fully considered.

(b) Variances may be issued for the repair or rehabilitation of historic structures upon a determination that the proposed repair or rehabilitation will not preclude the structure's con-tinued designation as a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.

(c) Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.

(d) Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.

(e) Variances shall only be issued upon:

1. A showing of good and sufficient cause;

2. A determination that failure to grant the variance would result in exceptional hardship to the applicant; and

3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public as identified in N.J.A.C. 19:4-9.14(a) or conflict with existing local laws or ordinances.

(f) Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with a lowest floor elevation below the base flood elevation and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation.

19:4-9.16 Conditions

Upon consideration of the factors of N.J.A.C. 19:4-9.14(a) and the purposes of this chapter, the decision may impose such conditions to the granting of variances as deemed necessary to reduce or minimize any potentially injurious effect of such variance upon other property in the neighborhood, and to carry out the general purpose and intent of this chapter. Failure to comply with any of the conditions or restrictions placed on a variance shall constitute a violation of this chapter.

19:4-9.17 Written decision and records

A written decision on an application for a variance shall be rendered in accordance with the procedure specified in N.J.A.C. 19:4-4.14. The Chief Engineer shall maintain complete records of all actions with respect to applications for variances, including technical information, and shall report any variances to the Federal Emergency Management Agency upon request.

19:4-9.18 Appeals

An appeal from an adverse decision of the Commission made pursuant to this subchapter may be made in accordance with the provisions of N.J.A.C. 19:4-4.19.

19:4-9.19 Scope

In all areas of special flood hazards, the standards in this subchapter are required.

19:4-9.20 Buildings

(a) Residential construction: New construction and substantial improvement of any residential structure shall have the lowest floor elevated to a minimum of one foot above the base flood elevation. Adequate drainage paths shall be provided around structures on slopes to guide floodwaters around and away from proposed structures.

(b) Non-residential construction: New construction and substantial improvement of any commercial, industrial or other non-residential structure shall either have the lowest floor, including basement, elevated a minimum of one foot above the base flood elevation, and have adequate drainage paths around structures on slopes to guide floodwaters around and away from proposed structures, or together with the attendant utilities and sanitary facilities shall:

1. Be floodproofed, so that below the elevation equal to one foot above the base flood elevation, the structure is water tight with walls impermeable to the passage of water;
2. Have structural components capable of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy; and
3. Be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting the applicable provisions of this subsection. Such certification shall be provided to the Chief Engineer.

(c) Manufactured homes shall be anchored in accordance with N.J.A.C. 19:4-9.23.

(d) All manufactured homes to be placed or substantially improved within an area of special flood hazard shall be elevated on a permanent foundation such that the top of the lowest floor is elevated to a minimum of one foot above the base flood elevation.

19:4-9.21 Building sites

(a) All building site construction, including, but not limited to, parking lots, driveways, sidewalks, truck maneuvering areas, and landscaped areas, shall be consistent with the need to minimize flood hazards and damage.

(b) All building site construction shall have public utilities and facilities such as sewer, gas, electric, and water systems located and constructed to minimize flood hazards and damage.

(c) Base flood elevation data shall be provided for building site proposals which contain at least three acres.

19:4-9.22 Subdivision improvements

(a) All subdivision proposals, including roads, culverts, bridges, and tide gates, shall be consistent with the need to minimize flood hazards and damage.

(b) All subdivision proposals shall have public utilities and facilities such as sewer, gas, electric, and water systems located and constructed to minimize flood hazards and damage.

(c) All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage.

(d) Base flood elevation data shall be provided for subdivision proposals which contain at least three lots or three acres (whichever is less).

19:4-9.23 Anchoring

(a) All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure.

(b) All manufactured homes shall be anchored to resist flotation, collapse, or lateral movement. Methods of anchoring may include, but are not to be limited to, use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable State and local anchoring requirements for resisting wind forces.

19:4-9.24 Construction material and methods

(a) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

(b) All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.

19:4-9.25 Utilities

(a) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.

(b) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharge from the systems into flood waters.

(c) On-site water disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

(d) Electrical, heating, ventilation, plumbing and air-conditioning equipment and other service facilities shall be designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

19:4-9.26 Enclosure openings

(a) For all new construction and substantial improvements, fully enclosed areas below the lowest floor that are usable solely for parking of vehicles, building access or storage in an area other than a basement and that are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a licensed professional engineer or registered architect or must meet or exceed the following minimum criteria:

1. A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided;
2. The bottom of all openings shall be no higher than one foot above grade; and
3. Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of flood waters.

Adopted in 38 N.J.R. 1860(a), effective May 1, 2006.